DOCUMENT RESUME

ED 111 992 CE 004 735

AUTHOR Fieldman, Rob
TITLE Developing Instructional Materials to Aid in Implementing the "Wisconsin Guide to Local Curriculum Improvement in Industrial Education, K-12." Final Report 1974-75.
INSTITUTION Wisconsin Univ. - Stout, Menomonie. Center for Vocational, Technical and Adult Education.; Wisconsin Univ. - Stout, Menomonie. Graduate Coll.
SPONS AGENCY Wisconsin State Dept. of Public Instruction, Madison.
PUB DATE 16 May 75
NOTE 39p.; For the learning packages, see ED 097 538-552, CE 004 736, and CE 004 743-748; for the "Wisconsin Guide..." see ED 092 799

EDRS PRICE MF-$0.76 HC-$1.95 Plus Postage
DESCRIPTORS *Abstracts; Audiovisual Aids; Elementary Secondary Education; *Industrial Education; *Instructional Materials; Learning Activities; *Material Development; Problem Solving

ABSTRACT

The report summarizes project activities of 1973-75 in which instructional materials were developed to aid in the implementation of the Wisconsin Guide to Local Curriculum Improvement in Industrial Education, K-12. A summary of activities (1973-74 project year) outlines project organization information and lists the titles of 14 learning activity packages developed and goals for the following year. The summary of activities and final report (1974-75 project year) outlines personnel and procedure reorganization, new learning and problem solving activity package titles and audiovisual material prepared, and enumerates eight objectives related to the development and distribution of materials and the degree to which they were met. Abstracts are provided which describe 26 field-tested instructional packages and 13 untested packages, including learning activity packages, a unit proposal, problem solving activities, and audiovisual programs. Subject areas covered by the packages include industrial education, career education, communication, management and personnel, problem solving activities, and cooperative education. Also appended are a field testing letter of inquiry and questionnaire, and questionnaires regarding teacher evaluation of programs and problem solving activities used. (LH)

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Final Report--1974-75

Project No. 5-4120/R004

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DEVELOPING INSTRUCTIONAL MATERIALS TO AID IN IMPLEMENTING THE WISCONSIN GUIDE TO LOCAL CURRICULUM IMPROVEMENT IN INDUSTRIAL EDUCATION, K-12

Prepared by

Rob Fieldman, Project Coordinator

Project Directors

Lawrence S. Wright

M. James Bensen

The Graduate College and the Center for Vocational, Technical and Adult Education, both of the University of Wisconsin-Stout
Menomonie, Wisconsin

May 16, 1975

CE 004 735

ACKNOWLEDGEMENTS

For their valuable counsel, cooperation and critical analysis of this project, the coordinator wishes to express his appreciation to:

Dr. Lawrence S. Wright, Assistant Dean of the Graduate College and Director of M.S. Degree Program, Industrial Education, University of Wisconsin-Stout, and Co-Director of this project.

Dr. M. James Bensen, Director of B.S. Degree Program, Industrial Arts Education, University of Wisconsin-Stout, and Co-Director of this project.

Acknowledgement should be given to the following Advisory Committee members who helped provide guidance for the project:

Dr. Orville Nelson, Research Specialist, Center for Research and Educational Improvement, University of Wisconsin-Stout.

Dr. Harold Halfin, Director of M.S. Degree Program; Vocational Education and Ed.S. Degree Program; Industrial and Vocational Education; Director, Center for Vocational, Technical and Adult Education; University of Wisconsin-Stout.

Dr. E. Robert Rudiger, Department Chairman, Industrial Teacher Education, University of Wisconsin-Stout.

Mr. Leonard F. Sterry, Consultant, Industrial Arts, State Department of Public Instruction, Madison, Wisconsin.

Mr. Richard Kitzmann, Consultant, Trade and Industrial Education, State Department of Public Instruction, Madison, Wisconsin.

Appreciation and recognition is extended to the graduate assistants for their written contributions which helped to attain the goals of the project.

George Oles, Graduate Assistant, Audio-Visual Communications, University of Wisconsin-Stout

Owen Barry, Graduate Assistant, Industrial Education, University of Wisconsin-Stout.

Al Jenneman, Graduate Assistant, Industrial Education, University of Wisconsin-Stout.

Heather Wentling, Graduate Assistant, Audio-Visual Communications, University of Wisconsin-Stout.

Catherine Furay, Graduate Assistant, Guidance, University of Wisconsin-Stout.

For their personal involvement and suggestions for improvement, a special thanks is offered to the Wisconsin industrial education instructors who participated in field testing instructional materials.

Mr. Larry Prodoehl, Whitman Junior High School, Wauwatosa.

Mr. Gerry Marske, Marinette School District, Marinette.

Mr. Terry Squier, Westfield High School, Westfield.

Mr. Jim Gianoli, Clintonville Junior High School, Clintonville.

Mr. John Vanderhoof, Albany Public Schools, Albany.

Mr. Russell Plagemann, Webster Transitional School, Cedarburg.

Mr. Morris McFarlane, Joint School District No. 2, Mequon.

Mr. John DeBrauske, Urban Junior High School, Sheboygan.

Mr. Stan Lueck, Central Junior High School, Eau Claire.

Mr. Al Szepi, La Farge Public Schools, La Farge.

Mr. Tom Bartlett, Middle School, New Richmond.

Mr. Roger Dynes, Hartford High School, Hartford.

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SUMMARY OF ACTIVITIES

1973-74 Project Year

This project began in the fall of the 1973-74 school year as a joint effort organized at the University of Wisconsin-Stout through the cooperation of the Wisconsin Department of Public Instruction; the Graduate College and the Center for Vocational, Technical and Adult Education, both located at Stout.

The primary purpose of the project at that time was to develop, test, revise and publish instructional materials which would aid in the implementation of the Wisconsin Guide to Local Curriculum Improvement in Industrial Education, K-12.

In addition to the project directors and Advisory Board members, a coordinator was assigned to supervise and direct the activities of graduate assistants that were also assigned to this project. The graduate assistants were directly responsible for the preparation of the illustrative materials.

A total of twenty-three self-instructional learning activity packages, twelve problem solving activities, two suggested course curriculums and an elementary industrial unit was developed during 1973-74. During that year fourteen of the learning activity packages were field tested, revised and published. They were then made available through the Department of Public Instruction.

The titles of the published learning activity packages are as follows:

Overview of Industrial Education

An Introduction to Research and Development

Introduction to Production Technology

The Development of Industry

An Overview of Marketing and Distribution

Maintenance and Services

Getting to Know Materials

Let's Study Finance

Analyzing a Career

What is Communications

Communications Between Society and Industry

Occupations in Communications

How Does Industry Use Management

Interviewing for a Job

It should be noted that these packages attempt to illustrate the eleven Elements of Industry as stated in the Guide.

Because the project was to extend through the 1974-75 school year, a number of goals or objectives were established that would aid in expanding the work accomplished during the first year. They were stated in the following order:

1. continue to identify areas in the Guide, including the capstone level, where additional efforts should be exerted for implementation.

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2. develop instructional materials (both self-instruction and group directed) that coincide with the model previously developed.
3. continue to field test the materials developed.
4. continuously revise the materials as a result of the field tests.
5. publish the materials.
6. distribute published materials to industrial education teachers in Wisconsin.
7. supervise graduate assistants assigned to the project for developing, testing and publishing the illustrative materials which would implement selected portions of the Guide.
8. be available for further consultations with teachers and teacher groups in Wisconsin as a resource person to aid them in their efforts to implement the Guide.

SUMMARY OF ACTIVITIES AND FINAL REPORT

1974-75 Project Year

The purpose of the continuation of this project into the 1974-75 school year was to meet the objectives that had been established during the previous year. In addition, slight modifications were made to better increase the variety of published materials.

The project was again undertaken in cooperation with the Wisconsin Department of Public Instruction; the Center for Vocational, Technical and Adult Education and the Graduate College. The Department of Industrial Teacher Education, School of Industry and Technology also became active in the project. Mr. Richard Kitzmann, Consultant in Trade and Industrial Education from the Wisconsin Department of Public Instruction, was also named to the list of Advisory Board members.

In addition, upon resignation of Mr. Ritz to pursue advanced graduate study, a new project coordinator was assigned to supervise the activities of the project and the graduate assistants who would ultimately implement the objectives for the 1974-75 school year.

This year's coordinator was employed on a "half-time" assistantship in which twenty hours per week were designated to the project duties. A total of five graduate assistants were assigned to the project and their work loads were as follows: one half-time assistant (20 hours per week); three quarter-time assistants (10 hours per week); and one eighth-time assistant (5 hours per week). The eighth-time assistant was employed only for the first semester. All of the other graduate assistants were

employed for the 1974-75 school year commencing on September 1, 1974 and ending May 16, 1975.

To best describe this year's progress it is helpful to compare the results with the objectives that were established at the beginning of the year. Each objective has been listed and is followed by the progress toward that objective.

Objective 1: Continue to identify areas in the Guide, including the Capstone level, where additional efforts should be exerted for implementation.

In addition to the necessity for more materials at the Capstone level, it was determined that the elementary level was in need of additional illustrative materials that would introduce the concepts of industry and its related elements. It was also decided that alternate delivery systems (methods of instruction) should be emphasized in that most of the previously developed materials were in package format. The new materials would also be more flexible in that they could be used at more than one particular grade level.

Objective 2: Develop instructional materials (both self-instructional and group directed) that coincide with the model shown in the Guide.

An initial observation by the coordinator and other assistants revealed that much of previously developed material was written at a fairly high level of understanding and vocabulary. This was especially true in the introductory portions of the learning activity packages and was regarded as a detriment to the overall student acceptance and use of the package. A primary goal, then, was to develop all of the new

materials with a reading and comprehension level that would be more appropriate to the prospective students.

The new activity and learning packages were designed primarily for student use. Some materials, however, required that the introduction and/or the content be presented by the instructor. This was particularly true in the new elementary units that were developed especially for the teacher.

Because of the variety of skills provided by the graduate assistants, many new types of learning materials were developed. Probably the most dynamic of these were the three filmstrip and tape presentations. They provided a new dimension of learning materials that had not previously existed.

A number of problem solving activities were also developed that were designed to capture student interest and creativity. Unlike the previous problem solving activities, the new activities did not include suggested solutions to the problem. This was done in an effort to create a true problem solving atmosphere for both the student and the instructor.

The following is a list of titles developed during the 1974-75 school year.

LEARNING ACTIVITY PACKAGES

Career Planning

Co-op Program

Industry for the Elementary Grades

The Enterprise - An Alternate Delivery System

UNIT PROPOSAL

Light Building Construction

PROBLEM SOLVING ACTIVITIES

Compressed Air Propulsion

Egg Craft

Future Community Design

Marooned in the Past

Metrication

Mousetrap Vehicle

Paper Airplane Contest

Safety Card

The Multi System Encapsulator

AUDIO VISUALS AND VISUAL AIDS

The Development of Communications

The Enterprise

What is Communications

Overhead Transparencies for each of the 11 elements of industry

Since the Elements of Industry had already been published, this year's project experimented with a wide range of topics including Energy, the Metric System, the Co-op Program, and Career Planning. It should be noted that Overhead Transparencies were prepared to enhance the previously published packages regarding the Elements of Industry.

Objective 3: Field test the materials that have been developed.

The field testing was considered a high priority objective in that only fourteen of the twenty-three learning activity packages had been

field tested during 1973-74. This left nine packages, twelve problem solving activities and three curriculum proposals to be field tested.

In an effort to fulfill the objective, the coordinator began by soliciting the names of Industrial Arts instructors within the State who were interested in participating in field testing the materials. A letter and questionnaire were sent to eighteen instructors requesting their participation. Thirteen instructors responded and offered their assistance.

The questionnaire listed all of the packages that had been developed. This permitted the instructor to select the material that would best suit his needs.

After the coordinator had received the questionnaires, the instructor's requests were reviewed to insure that all of the materials would be field tested.

All of the field testors were telephoned to determine whether they wanted Xerox copies or thermofax masters of the packages. The thermofax masters allowed for duplication of the package utilizing the instructor's facilities. This telephone conversation also allowed the coordinator to emphasize that particular packages were either not requested or were too frequently requested and their assistance in balancing these requests would be appreciated.

The materials were then mailed to the instructors and formal field testing began on November 18, 1974. The instructors were given approximately three months in which to implement the activities into their classroom.

The field testing evaluations were sent out on February 12, 1975. The evaluation form for the learning activity packages was revised and a new evaluation was prepared for the problem solving activities.

Most of the evaluations were returned within a few weeks. Late returns were due in part to the variety of vacations and other school activities that impeded the instructor's progress.

Objective 4: Revise the materials as a result of field tests.

All of the returned evaluations were reviewed by the coordinator and necessary revisions were made to the materials. A letter of appreciation was then sent to each of the instructors who had participated in the field testing.

Because of the lack of time, only a few of the materials developed during the 1974-75 project year were field tested. It was decided that an addendum attesting to this fact would be included with each package which had not been field tested.

Objective 5: Publish the materials.

When the revisions had been made to the field-tested packages, they were readied for publication. The materials were proofread and permission to quote was obtained for packages where quotations were used. It was determined that fifty copies would be required of each package. These would then be distributed equally to the Department of Public Instruction and the University of Wisconsin--Stout. The necessary requisitions were obtained and signed.

Special attention was directed to three filmstrip-tape presentations in that the filmstrips were duplicated by a company in Minneapolis, Minnesota while the accompanying cassette tapes were duplicated at Stout.

Objective 6: Distribute published materials to Wisconsin Industrial Education teachers.

To accomplish this objective, the project co-directors planned, organized and instituted a new Dissemination Center here at Stout that would serve to duplicate and distribute copies of all instructional materials which have been developed for this project.

The materials will be made available upon request to instructors or other interested persons at a nominal fee. The purpose of the fee is to offset the expense for paper, duplication and postage.

For the purpose of the Dissemination Center, the problem solving activities will be collected and distributed as a single package. This will also be true for the mass production activities.

Objective 7: Supervise such graduate assistants as may be assigned to the project for developing and testing illustrative materials.

The supervision of graduate assistants was carried out by the project coordinator. The project coordinator was supervised by the project co-directors. The coordinator was responsible for determining the areas in the Guide in need of implementation, field testing and preparation of new illustrative materials. The other graduate assistants were responsible for the production of the Audio-Visual materials and most of the new instructional packages.

Objective 8: Be available for further consultation with teachers and teacher groups in Wisconsin as a resource person and aid them in their efforts to implement the Guide.

While opportunities for fulfilling this objective were somewhat limited, the coordinator did give a presentation at the 21st Annual

Industrial Education Conference that was held at Stout on October 11, 1974. The title of the presentation was "Materials for Implementing the New Wisconsin Industrial Education Guide".

The busy schedule of the coordinator, graduate assistants and co-directors prohibited any travel to observe schools throughout the state or in particular those schools and instructors wno were engaged in field testing the materials.

RECOMMENDATIONS

Based on the results of field testing and observations made by the project staff, the following recommendations are made for future study.

1. The preparation of additional illustrative materials, especially those that provide alternative delivery systems (methods of introduction and instruction) to the instructor.

2. The continuation of the Dissemination Center in order to provide instructors in the field with illustrative materials that suggest ways to implement the Guide.

3. A study to determine the usefulness of the materials to teachers in-service.

4. The refunding and continuation of this project as an effort to develop and test additional materials especially in those areas not adequately supported.

Finally, it is hoped that the development of these illustrative materials will: (1) be found useful by industrial education teachers in Wisconsin and (2) that they may serve as examples so that additional materials can be developed at the local level.

REFERENCES

Wisconsin Department of Public Instruction. The Wisconsin Guide to Local Curriculum Improvement in Industrial Education, K-12. (Fall 1973). Madison: Wisconsin Department of Public Instruction, 1973.

Wright, Lawrence S., and others. "A Proposal for Developing Instructional Materials to Aid in Implementing The Wisconsin Guide to Local School Improvement in Industrial Education, K-12." Menomonie: University of Wisconsin-Stout, April 26, 1973.

APPENDICES

Appendix A - Abstracts for Guide Implementation Materials That Have Been Field Tested.

Appendix B - Abstracts for Guide Implementation Materials That Have Not Been Field Tested.

Appendix C - Field Testing Letter of Inquiry

Appendix D - Field Testing Questionnaire

Appendix E - Instructor's Evaluation for Learning Activity Packages

Appendix F - Instructor's Evaluation for Problem Solving Activities

ABSTRACTS OF INSTRUCTIONAL MATERIALS PREPARED

TO IMPLEMENT THE WISCONSIN GUIDE TO LOCAL CURRICULUM

IMPROVEMENT IN INDUSTRIAL EDUCATION, K-12

UW-STOUT 1973-1975

1973-74

OVERVIEW OF INDUSTRIAL EDUCATION

ABSTRACT: This instructional package is intended to present the student with an overview of industrial education. Included in this instructional package are definitions of the terms, industry, technology, industrial education, and industrial arts education. In addition this package includes a list of the eleven elements of industry to include: research and development, production, marketing and distribution, maintenance and services, finance, manpower, materials, power and energy, property, management, and communications. An explanation of the function of each element in the total process of providing goods and services is also provided. Graphical representations of how industry relates to society and education are included to aid the student in developing a model representing their thoughts of how industry relates to society and education.

AN INTRODUCTION TO RESEARCH AND DEVELOPMENT

ABSTRACT: This instructional package is intended to present the student with an introduction to research and development as it is used by industry. Included in this lesson is a working definition of research and development. The five steps of the scientific method of research and development are listed and explained along with six traits of a creative thinker. The package explains the role of research and development as used by industry to produce goods and services.

INTRODUCTION TO PRODUCTION TECHNOLOGY

ABSTRACT: The intent of this instructional package is to acquaint the student with the methods and processes used in the production of goods. This package contains a definition of production technology and an explanation of the five stages of production. Also contained in this lesson are descriptions of the production practices of pre-processing, processing, and post-processing.

THE DEVELOPMENT OF INDUSTRY

ABSTRACT: This instructional package is intended to develop within the student an understanding of the significant time periods and major events in the history of industry. Included in this package are the five periods of the development of industry and examples of major events in each period. These are listed to familiarize the student with the history of industry. The student will select one period in history and construct a model of his choice that will explain an event, duplicate a machine, experiment, or a discovery of that time period.

AN OVERVIEW OF MARKETING AND DISTRIBUTION

ABSTRACT: The intent of this instructional package is to familiarize the student with the Marketing and Distribution element of industry and its function in the production of goods and services. This package deals with the product from the time it leaves the manufacturer until it reaches the consumer, including analysis (market research), advertising, transportation, storage, and sales.

MAINTENANCE AND SERVICES

ABSTRACT: This instructional package is intended to acquaint the student with the elements of maintenance and services as they function in modern industry. Included in this package is the definition of maintenance and service as it relates to industry. The package explains the difference between product maintenance and plant maintenance. The significant functions of, and reasons for, plant maintenance are also discussed in this package.

GETTING TO KNOW MATERIALS

ABSTRACT: The intent of this package is to acquaint the student with materials used by industry for the production of goods and services. This package deals with the origin of materials to include, natural and man-made. The lesson also deals with the process industry uses when selecting a material to be used in producing goods. This process includes the consideration of the composition of materials, how the material is processed, where it is available, what it costs, what it looks like, and whether or not it will do the job it is suppose to do.

LET'S STUDY FINANCE

ABSTRACT: The intent of this instructional package is to acquaint the student with the element of finance and its function in producing goods and services. Included in the package is a list of possible sources of financial support available to industry. An explanation of the kinds of financial support to include, stocks, bonds, loans, subsidies and grants, is also included in this lesson. A list of characteristics to be examined before acquiring various kinds of financial aid is included. The characteristics examined are concerned with the do's and don'ts in borrowing money. The proper method of recording financial transactions using a general journal form is discussed along with an explanation of how the stock market functions in the production of goods.

ANALYZING A CAREER

ABSTRACT: The intent of this instructional package is to acquaint the student with a method of career analysis to enable him to determine if a career is in harmony with his future employment goals. A case study of a selected career is included in this package as one example of a method for career analysis.

WHAT IS COMMUNICATIONS

ABSTRACT: The intent of this instructional package is to acquaint the student with the element of communications and how it functions in the production of goods and services. A definition of communications and the importance of accurate communications is stressed in this package. Also included in this lesson is an explanation of why it is so important for industry to coordinate communications of man to man, man to machine, machine to man, and machine to machine.

COMMUNICATIONS BETWEEN SOCIETY AND INDUSTRY

ABSTRACT: The intent of this instructional package is to acquaint the student with the interdependence of society and industry as related to the area of communications. Included in this package are examples of communication methods used by society and industry to communicate and examples of society and industry failing to communicate. Recommendations of how industry and society could improve their communications in a community area is included.

OCCUPATIONS IN COMMUNICATIONS

ABSTRACT: The intent of this instructional package is to encourage the student to explore occupational areas as a basis for selecting a career. A sample outline that will serve as an aid to the student to analyze possible communication related employment opportunities is included. This outline is based on the information provided in the Dictionary of Occupational Titles.

HOW DOES INDUSTRY USE MANAGEMENT

ABSTRACT: The intent of this instructional package is to acquaint the student with the element of management as it functions in the production of goods and services. Included in this package is a definition of management, the six phases of management needed in the production of goods and services, an example of an organizational outline for industrial management, the three basic types of ownership that exist in industry and an explanation of the "decide" process of problem solving.

INTERVIEWING FOR A JOB

ABSTRACT: The intent of this instructional package is to provide the student with an overview of the management element of industry and how it relates to the duties of a shop foreman. A major portion of this lesson deals with procedures used in interviewing candidates for shop maintenance related jobs. In addition the package furnishes a definition of management, and an example of an organizational outline of the responsibilities of the personnel within the shop setting.

HUMAN RESOURCES

ABSTRACT: The intent of this instructional package is to provide the student with the opportunity to work with the element of human resources (manpower) to gain an understanding of how it functions in providing goods and services. Included in this package is a definition and three sources of human resources to include: employment agencies, apprenticeship programs, and high and vocational schools. The characteristics of human resources including life styles expectations, duration of employment, commitment to the job, and the extent of responsibility of the job are also discussed in this lesson.

WHAT IS PROPERTY

ABSTRACT: The intent of this instructional package is to aid the student in gaining an understanding of the property element of industry and how it functions in the production of goods and services. Included in this package are the definition and explanation of property including its possible sources: purchased property, inherited property, and granted property. An explanation of real and intangible kinds of property to include land, buildings, equipment, materials, various forms of capital, and patents and rights are a major part of this lesson.

POWER AND ENERGY

ABSTRACT: The intent of this instructional package is to acquaint the student with the element of power and energy and how it functions in the production of goods and services. Included in this package is an explanation of power and energy and their distinguishing characteristics. Five different kinds of energy are discussed to include, natural energy, heat energy, chemical energy, mechanical energy, and atomic energy. Sources of energy supply to include: exhaustible supplies, inexhaustible supplies, and continuous supplies are also explained in the lesson.

HOW DOES MANAGEMENT AFFECT SOCIETY AND INDUSTRY

ABSTRACT: The intent of this instructional package is to aid the student in understanding the interdependence of society and industry as related to the management element. Included in this package are examples of societal management that exist in average communities: examples of societal situations where society and management coordinate their managerial actions, and a sample letter of application for a particular job from a list of employment descriptions.

EARLY LUMBERING

ABSTRACT: The intent of this instructional package is to encourage the student to explore the context in which the industry of early lumbering has developed. This lesson provides factual information that describes the story of how lumber was processed during the 1840's. Included are definitions of the tools and terms related to this past industrial era.

INTRODUCTION TO A CAPSTONE PROGRAM

ABSTRACT: The intent of this instructional package is to acquaint the student with the Trade and Industrial capstone program. Included in this package is an explanation of a capstone course and its ultimate objectives. An example of a job cluster and a method of analyzing common competencies of a job cluster are listed. In addition, this lesson provides examples of the seven job clusters in the Trade and Industrial capstone program. These seven clusters are vocational drafting, vocational graphics, vocational woodworking, vocational electricity and electronics, vocational metals, vocational power mechanics, and vocational aero space.

GEOMETRIC AND POSITIONAL DIMENSIONING

ABSTRACT: The intent of this instructional package is to acquaint the student with the geometric and positional dimensioning system to enable him to apply its principles to his future drafting communications studies. Included in this package are definitions, explanations, and symbols used in the geometric and positional dimensioning system. This instructional package is intended to be used in a capstone program and when completed, should guide the student to becoming a more competent draftsman.

PROPOSED CURRICULUM FOR A COURSE IN THE METAL INDUSTRIES

ABSTRACT: This course on Metals Industries is intended to give junior high students a comprehensive overview of the materials, processes, structure and social implications of the metal-oriented industries.

Experiences include laboratory work with testing and processing metals; field trips; small group investigation and reports; and a class enterprise project involving the design, production and marketing of a saleable metal product.

A significant feature of this course is field trips to local industries. The same industries can be visited several times but with a different facet of industry emphasized on each trip, in order to allow the students to become familiar with industry from several points of view. Opportunities for individual study are also provided in the course.

MASS PRODUCTION ACTIVITIES

ABSTRACT: A series of five novelty and puzzle-type products which can effectively be used as the vehicle for mass production activities.

EXAMPLE ELEMENTARY UNIT

ABSTRACT: Using a model consisting of: terminal objective, enabling objective, methods, media and materials, and evaluation; five concept examples are presented which illustrate the use of the Wisconsin Guide and which are appropriate to elementary school level instruction. Selected activities further illustrate this presentation.

EXAMPLES OF LEARNING TASKS APPROPRIATE TO THE GUIDE

ABSTRACT: This is a set of examples for the industrial arts teacher. For each of four of the five "field objectives" contained in the Guide, several sub-objectives classified by elementary, middle-junior, junior or senior high school levels are presented. Under each sub-objective a list of several possible alternative learning tasks or activities is suggested for that level. These examples are illustrative; not exhaustive.

PROBLEM SOLVING ACTIVITIES

ABSTRACT: The problem solving activities designed and developed by The Industrial Education Instructional Materials Development Project at the University of Wisconsin-Stout, are based on creative thought. It is the intent of these activities to develop in each student an awareness of their creative problem solving abilities. Each activity is designed to utilize the experience that each student has had with related tools and materials thus minimizing any possible skill oriented barrier that may be encountered.

As an introduction, a brief descriptive story including the usefulness of the end product of each activity is included to acquaint the student with the relevancy of the activity.

A number of the elements of industry, as stated in the Guide, are consolidated in each separate problem solving activity.

If used to their fullness, each of the problem solving activities can be developed from the research and development stage thru to the marketing and distribution stage, resulting in an actual enterprise or mass production experience.

The problem solving activities developed by this project are:

LET'S MAKE A WALL HANGING

LET'S CONSTRUCT A CATAPULT

LET'S BUILD AN ELEVATOR

LET'S DESIGN A RECREATIONAL GAME

LET'S MAKE A KITE

APPENDIX B

ABSTRACTS FOR GUIDE IMPLEMENTATION

MATERIALS THAT HAVE NOT BEEN FIELD TESTED

THE ENTERPRISE

ABSTRACT: The intent of this instructional package is to acquaint the student with the elements of an enterprise and to gain an understanding of how they function in the production of goods and services. Included in this package is an explanation of the distinguishing characteristics of an enterprise and an industry. An explanation of the eleven elements basic to the existence of an enterprise constitutes a major portion of this lesson. The elements explained are: communications, management, finance, human resources, power and energy, materials, research and development, production, marketing and distribution, property, and maintenance and service.

THE DEVELOPMENT OF COMMUNICATIONS

ABSTRACT: The intent of this instructional package is to encourage the student to explore the context in which the communications industry has developed and continues to develop. Included in this lesson are explanations of the seven eras of development of the communications industry. These seven eras include: the way communications began, messages of early times, stones to books, early American communications, and early, recent and present and future inventions. The student will construct replicas of early communication methods as aids to gaining an understanding of the important developments in the communication industry. These replicas are assembled into a museum to display the developments in the field of communications.

CAREER PLANNING

ABSTRACT: The intent of this package is to acquaint the student with a variety of commonly used terms, forms and applications used in career planning and job application. The student is allowed to list the requirements for a particular job, list his own qualifications and then compare the two lists to determine what additional training, skills or requirements may be necessary. The activity would be of benefit to senior high school students and those enrolled in capstone programs.

CO-OP PROGRAM

ABSTRACT: This package is designed to provide the student, instructor and employer with the basic requirements of the co-op program. The role of each participant is discussed and an emphasis is placed on the importance for each participant's adherance to the rules. Included in this package are copies of the various applications, blanks, forms, definitions and explanations used in the co-op program. This package is intended to be used as a senior high or capstone level activity.

INDUSTRY FOR THE ELEMENTARY GRADES

ABSTRACT: The intent of this package is to introduce the elementary instructor to major divisions within the world of industry. Construction, Materials, Power and Energy, Transportation and Communications are included. A list of suggested classroom activities is included for each element. This package would be of special value to the instructor teaching in the lower elementary grades.

THE ENTERPRISE -- AN ALTERNATE DELIVERY SYSTEM

ABSTRACT: This learning activity package is designed as an alternative to the standard format presented in many of the previous packages. Student interest and involvement is prompted through the use of questions and answers, easy readability and pictures. The package is intended for use at the junior high or middle school level. It should be noted that the standard package and a filmstrip - tape presentation, both titled "The Enterprise", are available to further enhance this activity.

(This Package is
Not Available)

UNIT PROPOSAL -- LIGHT BUILDING CONSTRUCTION

ABSTRACT: The intent of this capstone level unit is to acquaint the student with the tools, materials and equipment involved in Light Building Construction. The package is divided into the following sub-units: types of framing, tools and materials; foundations; floor systems; wall framing; roof assembly; and post and beam construction. Each unit is preceded by a set of objectives and followed by a short quiz that tests the student's comprehension of the material. The quizes may be removed from the package to provide a more content oriented instruction unit.

PROPOSED CURRICULUM FOR A COURSE IN AUTOMOTIVE SUSPENSION, STEERING, AND BRAKING SYSTEMS

ABSTRACT: This course of study is intended as an example of how the structure of the Guide can be implemented into a capstone automotive suspension, steering and braking systems program. It deals primarily with objective five of the Guide, "to prepare for entry into appropriate industry related occupations and develop a base for further occupational education."

The students educational level prior to enrolling in this course is a tenth grade education or equivalent. The course is divided into three units. These are:

Unit one:

1. Principles of front end alignment.
2. Aligning front ends of various makes of automobiles.
3. Wheel balancing.
4. Removal and replacement of suspension system components.

Unit two:

1. Steering system principles.
2. Overhaul of manual and power steering gears and power steering pumps.
3. Removal and replacement of steering system components.

Unit three:

1. Brake system principles.
2. Operation of brake drum and rotor lathe.
3. Overhaul of power brake units.
4. Overhaul of entire braking system, both drum and disc types.

AUDIO-VISUAL MATERIALS

THE DEVELOPMENT OF COMMUNICATIONS -- A filmstrip-tape presentation.

ABSTRACT: This filmstrip-tape presentation is designed to introduce the historical development of communications from early cave drawings to modern satellite communications. The presentation is enhanced by sound effects and music in addition to the voice of the narrator. A script is supplied for instructor or student use so that any important points can be reviewed or studied at length. This presentation is suitable for students from the upper elementary grades through senior high school. This presentation can also be used in conjunction with the learning activity package titled "The Development of Communications".

WHAT IS COMMUNICATIONS? -- A filmstrip-tape presentation.

ABSTRACT: This filmstrip-tape presentation defines communications through the use of the standard communications model. Emphasis is placed on the different types of communications including Man-to-Man, Man-to-Machine, Machine-to-Man, and Machine-to-Machine and the role that each of these plays in industry and society. This presentation is suitable for students from the upper elementary grades through senior high school. A learning activity package titled "What is Communications" is available that will further enhance this presentation.

THE ENTERPRISE -- A filmstrip-tape presentation.

ABSTRACT: This filmstrip-tape presentation describes the elements common to any enterprise. Emphasis is placed on supply and demand, profit, transportation, raw materials and the relationship of the enterprise to industry. This presentation is suitable for students in the upper elementary grades through senior high school. This presentation can be used in conjunction with the two learning activity packages titled "The Enterprise" and "The Enterprise -- An Alternate Delivery System".

OVERHEAD TRANSPARENCIES FOR EACH OF THE 11 ELEMENTS OF INDUSTRY

The intent of these overhead transparencies is to enhance the existing learning activity packages that describe an element of industry. Approximately five transparencies are provided for each element. The elements explained are: Research and Development, Production, Marketing and Distribution, Maintenance and Services, Finance, Human Resources, Materials, Power and Energy, Property, Management and Communications. They are intended for student or teacher use as study, demonstration or instructional aids.

PROBLEM SOLVING ACTIVITIES

ABSTRACT: The problem solving activities designed and developed by The Industrial Education Instructional Materials Development Project at the University of Wisconsin-Stout, are based on creative thought. It is the intent of these activities to develop in each student an awareness of their creative problem solving abilities. Each activity is designed to utilize the experience that each student has had with related tools and materials thus minimizing any possible skill oriented barrier that may be encountered.

As an introduction, a brief descriptive story including the usefulness of the end product of each activity is included to acquaint the student with the relevancy of the activity.

A number of the elements of industry, as stated in the Guide, are consolidated in each separate problem solving activity.

If used to their fullness, each of the problem solving activities can be developed from the research and development state thru to the marketing and distribution stage, resulting in an actual enterprise or mass production experience.

The problem solving activities developed by this project are:

DESIGNING A MOBILE

THE ELECTRO-MAGNETIC CRANE

LET'S MAKE A HAND FISHING REEL

LET'S MAKE A YO-YO

THE CLEANING AND LUBRICATION OF ELECTRIC MOTORS

REPAIR OF A LAMP CORD AND SOCKET

LAB MAINTENANCE PLAN DEVELOPMENT

COMPRESSED AIR PROPULSION

EGG CRAFT

FUTURE COMMUNITY DESIGN

MAROONED IN THE PAST

METRICATION

MOUSETRAP VEHICLE

PAPER AIRPLANE CONTEST

SAFETY CARD

THE MULTI SYSTEM ENCAPSULATOR

APPENDIX C

Date

Name and Address

Dear

Last spring you indicated through correspondence to John Ritz that you would be interested in field testing some of the learning materials and activities developed at the University of Wisconsin--Stout for implementing the new Wisconsin Guide to Local Curriculum Improvement in Industrial Education, K-12.

Because of the limited amount of time and materials available last year, many instructors were not able to participate in the field testing. This year we're getting an earlier start and would like to encourage your participation.

During the 1973-74 school year, fourteen packages on implementing the Guide were developed and field tested. We have an additional twelve packages, an elementary unit, and several problem solving activities now ready for field testing. We will also produce new materials throughout the school year that will require testing. Some of the materials will also be enhanced by audio-visual supplements.

If you are interested in field testing any of these materials, would you please indicate your preference on the enclosed questionnaire.

Thank you for your time and consideration. We are anticipating your next correspondence.

Sincerely yours,

Rob Fieldman, Coordinator
D.P.I. Project 1974-75

RF:jp
Enc.

034

APPENDIX D

Field Testing Questionnaire
For The Guide - 1974-75

Name: _____

School Address: _____ Phone: _____

Home Address: _____ Phone: _____

Please indicate where you can be most conveniently contacted:

_____ School _____ Home What time? _____

Area(s) and grade level(s) you are teaching _____

Do you have a copy of the Guide? _____ Yes _____ No

Have you used any of the materials from the Guide or from this project?

_____ Yes _____ No If so, which ones: _____

Please indicate those areas you would like to implement into your program:

I. Field Tested Last Year - Currently available through D.P.I.

___An Overview of what Industrial Arts is all about
___Role of Research and Development in Industry
___Production:
  ___The History of Production
  ___Processes involved in Industrial Production
  ___The Implications of Production on Society
___How does Marketing and Distribution Apply to Industry?
___How Maintenance and Service Affects People and Industry
___Communications:
  ___How does Communication Apply to Industry?
  ___How Communications Affect Industry and Society
  ___The History of Communications
  ___Applying for a Job
___How Finance is used in Producing Goods and Services
___Manpower:
  ___How does Industry use Manpower?
  ___Analyzing a Career
___Understanding Sources, Kinds, and Characteristics of Materials
___How is Power and Energy Used by Industry?
___The Role of Property in Industry and Society
___Management:
  ___How Management is used by Industry to Produce Goods And Services
  ___How Management Applies to the Interdependence of Industry And Society
___Interviewing for a Job

II. New Materials That Need Field Testing:

Individual Packages:

___ Early Lumbering (High School)
___ Power and Energy (Junior High)
___ Task Analysis (From the Guide; all levels)
___ Geometric and Positional Dimensioning (Capstone)
___ Human Resources (Junior High)
___ What is Property? (Junior High)
___ How Does Management Affect Industry and Society? (Junior High)
___ Introduction to the Capstone Program

Course Proposals:

___ The Metals Industry (Junior High)
___ Automotive Curriculum - Suspension, Steering and Brakes (Capstone)
___ An Elementary Unit

The following are problem solving or mass production activities:

___ Let's Make a Kite
___ Let's Make a Yo-Yo
___ The Electro-Magnetic Crane
___ Let's Make a Hand Fishing Reel
___ Let's Make a Wall Hanging
___ Designing a Mobile
___ Let's Build an Elevator
___ Let's Construct a Catapult
___ Let's Design a Recreational Game
___ Repair of a Lamp Cord and Socket
___ The Cleaning and Lubrication of Electric Motors
___ Lab Maintenance Plan Development
___ A Two-Piece Puzzle
___ Tick-Tack-Toe
___ A Furniture Puzzle
___ The Do-Nothing Machine

If you have any suggestions or if you can (briefly) contribute other problem solving or mass production activities, could you please share them with us?

Thank you.

APPENDIX E

UNIVERSITY OF WISCONSIN-STOUT
MENOMONIE, WISCONSIN
54751

EDUCATOR'S EVALUATION OF MATERIALS DEVELOPED TO IMPLEMENT THE GUIDE

This questionnaire is aimed at determining the value of the materials prepared as an aid in implementing the content of The Wisconsin Guide to Local Curriculum Improvement in Industrial Education, K-12. We would like to have your reactions so we can revise these materials where needed. Circle the one response which most nearly describes your opinion of each statement. An example is provided:

Key: SA - Strongly Agree
A - Agree
U - Uncertain
D - Disagree
SD - Strongly Disagree

Example: SA (A) U D SD

I feel that all boys at the junior high level should be required to enroll in industrial arts classes.

This response indicates that the individual agrees with the item stated. Please complete the questionnaire.

SA A U D SD 1. The student will frequently use the technical knowledge and skills he has developed while studying this lesson.

SA A U D SD 2. The package provided sufficient activities for the student.

SA A U D SD 3. Student interaction was provided for through the use of this package.

SA A U D SD 4. The package provided a realistic approach for the student to obtain education for a future position in our society.

SA A U D SD 5. Instruction provided in this material was always related to achievement of my course objectives.

SA A U D SD 6. Content provided in this package was usually up-to-date.

SA A U D SD 7. Instruction in this package was usually geared toward the individual and his needs, rather than the class as a whole.

SA A U D SD 8. The instructional material covered a wide enough spectrum to meet the educational needs of all my students.

SA A U D SD 9. Content of this package was never duplicative of materials previously learned by the student at lower levels of education.

SA A U D SD 10. All junior high students should be required to study the materials presented in this package.

SA A U D SD 11. This package has no place in the curriculum of my industrial education program.

SA A U D SD 12. The teaching of this package did not require me to develop any additional skills and strategies.

SA A U D SD 13. Other industrial education technical instruction would have been more relevant to the needs of the majority of my students.

SA A U D SD 14. The package provided an excellent source for my students to explore career possibilities.

SA A U D SD 15. The package contributes effectively toward understanding by my students of the concept of how industry functions in producing goods and services.

Open Ended Question:

In the space below, list suggestions for revision of this package.

Name:

School:

Package Evaluating:

Grade Level:

ERIC 038

APPENDIX F

Evaluation of Problem Solving Activities

1. Please evaluate each problem solving activity on a separate evaluation sheet. If you need more space, please use the back of either page.

2. What is the title of the problem solving activity you have field tested and are now evaluating? _____

3. How many students participated in this activity? _____

4. Was this the entire class? Yes___ Nc___ Comments _____

_____

5. Grade level? _____ 6. What area? (woods, metal, etc.) _____

7. How much time was spent on this activity? Per day _____; per week _____. Total time from start to final evaluation _____

8. Did the activity generate student interest? Yes___ No___ Comments _____

_____

_____

9. Do you think it was a pleasurable experience for you? Yes___ No___ Comments _____

for your students? Yes___ No___ Comments _____

_____

10. Do you think the student learned or gained from this experience? Yes___ No___ Comments _____

_____

_____

_____

11. Did he use or become familiar with library resources in developing his solution? Yes___ No___ Comments _____

_____

12. Were other resources or resource materials utilized (resource center, shop publications)? Yes___ No___ Comments _____

_____

_____